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No. XIII.

STAND FOR AN ASTRONOMICAL TELESCOPE.

The LARGE SILVER MEDAL and TWENTY POUNDS were presented to Mr. J. CUTHBERT, Maker of Mathematical Instruments, 5, Purbeck Place, Lambeth, for his improved Stand for an Astronomical Telescope; a Model of which has been placed in the Society's Repository.

5, Purbeck Place, near Church Street, Lambeth,
SIR, November 11, 1828. .

HAVING made a considerable improvement in the stands of astronomical telescopes, whereby a rough adjustment can be instantly obtained, and an accurate one in the usual manner, I am desirous of submitting it for the approbation of the Society of Arts, &c., and shall be glad to exhibit a telescope so mounted to any of the members who may please to favour me with a call, and I will attend a committee with it whenever the Society may please to appoint. I could, however, wish it to be seen as early as may be, as it is made for a gentleman who will shortly want it to be sent to him at Brighton.

I am, Sir, &c. &c.

A. AIKIN, Esq.
Secretary, &c. &c.

JOHN CUTHBERT.

Reference to the Engraving. Plate VII.

Fig. 1, a side view of the upper part of a telescope stand. Figs. 2, 3, and 4, front views of parts in section; *aa*, the pillar; *bb*, a circular rack, with a conical pipe fitted well for turning in the pillar top; again within this is fitted the conical axis *cc*, which passes through, and is secured as usual at the bottom of the pillar by a squared collar and screw *d*; on top of this axis is secured, by screws *ee*, a frame *ff*, the right and left sides of which are alike, and carry bars *gg*, with free or quick movement; the right side only is shewn, the slow movement being attached to it. These bars *gg* form the cradle on which the telescope is laid, and secured as usual by screws with nuts in the gaps *hh*. Now, as the frame and axis may be turned freely round either in the rack *b*, or with it in the pillar *a*, a tangent screw *i* is fixed under the frame to govern its motion in the rack, leaving that in the pillar only free; *j*, its handle, connected by Hook's joint; when this is turned, the frame *f* carrying the telescope is slowly moved in the rack *b*; but on moving the telescope by hand, the whole moves together in the pillar *a*. Thus the horizontal movement, either a slow, or free and quick one, is obtained. For the vertical motion, the bar *g*, fig. 3, has a stud *k*, the round part *l* of which fits and moves freely in the frame *f*; this stud is shewn separate in fig. 5. The part *m*, which projects through the frame *f*, is square, to receive the conical plug or collar *n*; again on this is fitted the circular rack *o*, which is followed by a square collar *p*, and screw-nut *q*. This rack fits the tangent screw *r*, shewn separate in fig. 4; *ss*, its frame, by which it is fixed to the frame *f*, as in fig. 1; *t*, the handle, connected by Hook's joint. The rack *o* cannot move but by the tangent screw *r*: when thus slowly moved,

its friction on the plug *n* carries it round with the stud *k* and bar *g*, to which the telescope is attached, its centre of gravity coinciding, as near as may be, with the stud *k*. But as the plug *n* can turn without moving the rack *o*, the telescope is free to be moved by hand, and may now be turned freely in any direction to find the object, and then follow it by the tangent screws; and as these tangent screws are never moved out of their fittings, they are not liable to damage, but always act well. The circle *vv* is only a cap to protect the rack and screw. The nut and collar, *q* and *p*, are removed from fig. 1, to shew the squared plug *n*; they serve to tighten the rack on this plug sufficiently to make it carry the telescope with it.

CERTIFICATES.

DEAR SIR,

5, *Charing Cross*, Dec. 3, 1828.

In reply to your note of yesterday, respecting my opinion of your rack-work adjustment for telescope stands, I have to observe, that as far as a limited inspection would allow me to judge, I should say that it is both novel and good. The improvement is valuable, as the inconvenience of locking and unlocking the endless screw, necessary in the old plan, is completely removed. Another advantage is also obtained by your modification, that of preventing the teeth of the rack from receiving injury from the hands of unskilful persons.

I am, Sir, &c. &c.

Mr. J. CUTHBERT.

FRANCIS WATKINS.

DEAR SIR,

Millbank Row, Dec. 4, 1828.

I congratulate you on your recent invention of a rack-work joint: it is both ingenious and useful, and I have

no doubt, when it is made public, that no telescope with a high power will be made without such a joint.

I am, Sir, &c. &c.

D. JONES.

Blackheath Hill, Greenwich,

December 4, 1828.

DEAR SIR,

You having lately made for me a new reflecting telescope, mounted on one of your improved stands, I have the pleasure to inform you, that I have found much time and trouble saved by your most excellent mode, which gives the instrument perfect liberty of being moved freely by the hand to any point, without the trouble and inconvenience of disengaging rack-work, &c., and then to be in a state for the immediate working of the finer adjustments. This great improvement I have no doubt will be duly appreciated by all who are in the habit of using telescopes; and if my humble testimony can be of any service to you, I shall be extremely happy.

I am, Sir, &c. &c.

Mr. CUTHBERT.

JOHN PENN.

58, Commercial Road, Lambeth,

November 15, 1828.

SIR,

I thank you for the opportunity you have afforded me of making a due trial of your new stand for telescopes. It appears to me to be *by far* the best which has yet been invented, and to be applicable to *every description of telescope*: I have no doubt that it will come into general use, and become a regular standard hereafter. The principle of allowing the tube to be *freely moved by the hand in any*

direction, combined with the instantaneous action of the fine movement, *without the intervention of any clamping, or tightening of screw-work, &c.*, is, in my idea, the very acmè of perfection in these matters, and is a desideratum which must have been felt by every one used to astronomical observation.

I am, Sir, &c. &c.

C. R. GORING, M.D.

DEAR SIR,

Royal Observatory, Dec. 1, 1828.

I think your method of mounting the reflecting telescope, brought for my inspection, very superior indeed to those in common use; it is simple and elegant in appearance, and its application practically perfectly unobjectionable.

I am happy to have this opportunity of expressing my high opinion of your professional merit, as I always much admired both the intelligence of design and perfect execution in the various instruments of your construction which have come under my notice.

I am, Sir, &c. &c.

J. POND.

Some time after the report of the Committee on Mr. Cuthbert's improved telescope-stand had passed the Society, it was discovered by one of the members that Mr. Tully had, several years ago, fitted up a telescope made by himself, in which the horizontal motion was obtained by a contrivance not differing in any material degree from Mr. Cuthbert's. There was not the smallest reason for believing that the invention was not original on

the part of either of these gentlemen ; and the following letter from Mr. Cuthbert is subjoined as an act of justice to both these very able and ingenious artists.

SIR,

5, *Purbeck Place*, April 8, 1829.

Having been informed by Mr. Varley, that he had seen a telescope-stand at Mr. Tully's, with one of the motions similar to my invention (which was approved of by the Society), I called, in consequence, to inspect it, and found, as was stated, that a similar contrivance had been adapted to the horizontal movement, but not to the vertical one. I inquired if Mr. Tully had seen the improvement applied to both motions ; he replied, he was not aware of its having been so applied before my construction.

I am, Sir, &c. &c.

J. CUTHBERT.

No. XIV.

WRENCH FOR ROUND-HEADED SCREWS.

The Thanks of the Society were voted to Mr. THEODORE JONES, of the Patent Iron Wheel Works, Vauxhall, for his Wrench for Round-Headed Screws; which has been placed in the Society's Repository.

Patent Iron Wheel Works, Vauxhall,

SIR,

February 24, 1829.

I do myself the honour of presenting to the Society for
the Encouragement of Arts and Manufactures the small